

# SEQUENCE LISTING

<110> Simmons, Carl R.

<120> Nucleic Acids Encoding Defense Inducible  
Proteins and Uses Thereof

<130> 35718/242990

<141> 02/28/2002

<150> 60/272,227

<151> 02/28/2001

<160> 25

<170> FastSEQ for Windows Version 4.0

<210> 1

<211> 676

<212> DNA

<213> Zea mays

<220>

<221> CDS

<222> (89)...(367)

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tcggaggaca caccaagcgt ctgcacca atg gct tac tac cag gag gtg gac 112

Met Ala Tyr Tyr Gln Glu Val Asp

1

5

tac tgc tcg gag gag gtg agg tcg gtg gcc ccg gcc ggc ttc ggc cgc 160

Tyr Cys Ser Glu Glu Val Arg Ser Val Ala Pro Ala Gly Phe Gly Arg

10

15

20

cac ggc ggc ggc gtc cag cag cac gtc gtc aag gag aag ttc gag gag 208

His Gly Gly Gly Val Gln Gln His Val Val Lys Glu Lys Phe Glu Glu

25

30

35

40

gtc gac acg gta tca cgc gcc ggc gcc aac cac cac cac cat ggt 256

Val Asp Thr Val Ser Arg Ala Gly Ala Asn His His His His His Gly

45

50

55

cac cac ggc ggc cac ggc ttc gtg gtg cgc gag acc agg gtc gag gag 304

His His Gly Gly His Gly Phe Val Val Arg Glu Thr Arg Val Glu Glu

60

65

70

gac atc aac acc tgc acc ggc gag gtc cac gag cgc agg gag agc ttc 352

Asp Ile Asn Thr Cys Thr Gly Glu Val His Glu Arg Arg Glu Ser Phe

75

80

85

ctc gcc agg gct aac tgagccgccc ggcgccgggc atccacgccc gttcgtgctt 407  
 Leu Ala Arg Ala Asn  
 90

gcctgcgtgc cttatgtatg tctgtggttg actggttggtg caggggtcatc gtacttggct 467  
 atcgtagctg cagcactca gtcctgtac gaattacgac aataagctcg tgacctgaat 527  
 aaaacttctt cgtaatacta atacctacat caaaaaaaaa aaaaaaaaaa aaaaaaaaaa 587  
 aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 647  
 aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 676

<210> 2  
 <211> 93  
 <212> PRT  
 <213> Zea mays

<400> 2  
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 1 5 10 15  
 Val Ala Pro Ala Gly Phe Gly Arg His Gly Gly Gly Val Gln Gln His  
 20 25 30  
 Val Val Lys Glu Lys Phe Glu Glu Val Asp Thr Val Ser Arg Ala Gly  
 35 40 45  
 Ala Asn His His His His His Gly His His Gly Gly His Gly Phe Val  
 50 55 60  
 Val Arg Glu Thr Arg Val Glu Glu Asp Ile Asn Thr Cys Thr Gly Glu  
 65 70 75 80  
 Val His Glu Arg Arg Glu Ser Phe Leu Ala Arg Ala Asn  
 85 90

<210> 3  
 <211> 574  
 <212> DNA  
 <213> Zea mays

<220>  
 <221> CDS  
 <222> (96)...(374)

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 ggcgctgcgc acagacacac caagcgtcgg cacca atg gct tac tac cag gag 113  
 Met Ala Tyr Tyr Gln Glu  
 1 5

gtg gac tac tgc tcg gag gag gtg agg tcg gtg gcc ccg gcc ggc ttc 161  
 Val Asp Tyr Cys Ser Glu Glu Val Arg Ser Val Ala Pro Ala Gly Phe  
 10 15 20

ggc cgc cac ggc ggc ggc gtc cag cag cac gtc gtc aag gag aag ttc 209  
 Gly Arg His Gly Gly Gly Val Gln Gln His Val Val Lys Glu Lys Phe  
 25 30 35

gag gag gtc gac acg gtc tca cgc gcc ggc gcc aac cac cac cac cac 257  
 Glu Glu Val Asp Thr Val Ser Arg Ala Gly Ala Asn His His His His  
 40 45 50

cat ggt cac cac ggc ggc cac ggc ttc gtg gtg cgc gag acc agg gtc 305  
His Gly His His Gly Gly His Gly Phe Val Val Arg Glu Thr Arg Val  
55 60 65 70

gaa gag gac atc aac acc tgc acc ggc gag gtc cac gag cgc agg gag 353  
Glu Glu Asp Ile Asn Thr Cys Thr Gly Glu Val His Glu Arg Arg Glu  
75 80 85

agc ttc ctc gcc agg gct aac tgagccgccc ggcgccgggc atccacgccc 404  
Ser Phe Leu Ala Arg Ala Asn  
90

gttcgtgctt gcctgctgctg cttatgtatg tctgtggttg actggttggtt cagggtcatc 464  
gtacttggct atcgtagctg cacgcactca gtcctgtac gaattacgac aataagctcg 524  
tgacctgaat aaaacttctt cgtaatacta aaaaaaaaaa aaaaaaaaaa 574

<210> 4  
<211> 93  
<212> PRT  
<213> Zea mays

<400> 4  
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Val Ala Pro Ala Gly Phe Gly Arg His Gly Gly Gly Val Gln Gln His  
20 25 30  
Val Val Lys Glu Lys Phe Glu Glu Val Asp Thr Val Ser Arg Ala Gly  
35 40 45  
Ala Asn His His His His His Gly His His Gly Gly His Gly Phe Val  
50 55 60  
Val Arg Glu Thr Arg Val Glu Glu Asp Ile Asn Thr Cys Thr Gly Glu  
65 70 75 80  
Val His Glu Arg Arg Glu Ser Phe Leu Ala Arg Ala Asn  
85 90

<210> 5  
<211> 577  
<212> DNA  
<213> Zea mays

<220>  
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<222> (99)...(377)

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acgggcgctg cgcacagaca caccaagcgt cggcacca atg gct tac tac cag gag 116  
Met Ala Tyr Tyr Gln Glu  
1 5

gtg gac tac tgc tcg gag gag gtg agg tcg gtg gcc ccg gcc ggc ttc 164  
Val Asp Tyr Cys Ser Glu Glu Val Arg Ser Val Ala Pro Ala Gly Phe  
10 15 20

ggc cgc cac ggc ggc ggc gtc cag cag cac gtc gtc aag gag aag ttc 212  
Gly Arg His Gly Gly Gly Val Gln Gln His Val Val Lys Glu Lys Phe  
25 30 35

gag gag gtc gac acg gtc tca cgc gcc ggc gcc aac cac cac cac cac 260  
 Glu Glu Val Asp Thr Val Ser Arg Ala Gly Ala Asn His His His His  
 40 45 50

cat ggt cac cac ggc ggc cac ggc ttc gtg gtg cgc gag acc agg gtc 308  
 His Gly His His Gly Gly His Gly Phe Val Val Arg Glu Thr Arg Val  
 55 60 65 70

gaa gag gac atc aac acc tgc acc ggc gag gtc cac gag cgc agg gag 356  
 Glu Glu Asp Ile Asn Thr Cys Thr Gly Glu Val His Glu Arg Arg Glu  
 75 80 85

agc ttc ctc gcc agg gct aac tgagccgccc ggcggccggc atccacgccc 407  
 Ser Phe Leu Ala Arg Ala Asn  
 90

gttcgtgctt gacctgctgc cttatgtatg tctgtggttg actggttggtt cagggtcatc 467  
 gtacttggtt atcgtagtg cacgcactca gctcctgtac gaattacgac aataagctcg 527  
 tgacctgaat aaaacttctt cgtaatacta aaaaaaaaaa aaaaaaaaaa 577

<210> 6  
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 <213> Zea mays

<400> 6  
 Met Ala Tyr Tyr Gln Glu Val Asp Tyr Cys Ser Glu Glu Val Arg Ser  
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 Val Ala Pro Ala Gly Phe Gly Arg His Gly Gly Gly Val Gln Gln His  
 20 25 30  
 Val Val Lys Glu Lys Phe Glu Glu Val Asp Thr Val Ser Arg Ala Gly  
 35 40 45  
 Ala Asn His His His His His Gly His His Gly Gly His Gly Phe Val  
 50 55 60  
 Val Arg Glu Thr Arg Val Glu Glu Asp Ile Asn Thr Cys Thr Gly Glu  
 65 70 75 80  
 Val His Glu Arg Arg Glu Ser Phe Leu Ala Arg Ala Asn  
 85 90

<210> 7  
 <211> 580  
 <212> DNA  
 <213> Zea mays

<220>  
 <221> CDS  
 <222> (99)...(380)

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 acgggcgctg cacacagaca caccaagcgt cggcacca atg gct tac tac cag gag 116  
 Met Ala Tyr Tyr Gln Glu  
 1 5

gtg gac tac tgc tcg gag gag gtg agg tcg gtg gcc ccg gcc ggc ttc 164  
 Val Asp Tyr Cys Ser Glu Glu Val Arg Ser Val Ala Pro Ala Gly Phe

10	15	20	
ggc cgc cac gga ggc ggc gtc cag cag cac gtc gtc aag gag aag ttc			212
Gly Arg His Gly Gly Gly Val Gln Gln His Val Val Lys Glu Lys Phe			
25	30	35	
gag gag gtc gac acg gtc tca cgc gcc ggc gcc aac cac cac cac cac			260
Glu Glu Val Asp Thr Val Ser Arg Ala Gly Ala Asn His His His His			
40	45	50	
cac cat ggt cac cac ggc ggc cac ggc ttc gtg gtg cgc gag acc agg			308
His His Gly His His Gly Gly His Gly Phe Val Val Arg Glu Thr Arg			
55	60	65	70
gtc gag gag gac atc aac acc tgc acc ggc gag gtc cac gag cgc agg			356
Val Glu Glu Asp Ile Asn Thr Cys Thr Gly Glu Val His Glu Arg Arg			
75	80	85	
gag agc ttc ctc gcc agg gct aac tgagccgccc ggcggccggc atccacgccc			410
Glu Ser Phe Leu Ala Arg Ala Asn			
90			
gttcgtgcct gcctgcgtgc cttatgtatg tctgtggttg actggttggtg caggggtcatc			470
gtacttggtc atcgtacgtg cacgcactca gtcctgtac gaattacgac aataagctcg			530
tgacctgaat aaaacttctt cgtaatacta aaaaaaaaaa aaaaaaaaaa			580
<210> 8			
<211> 94			
<212> PRT			
<213> Zea mays			
<400> 8			
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1	5	10	15
Val Ala Pro Ala Gly Phe Gly Arg His Gly Gly Gly Val Gln Gln His			
20	25	30	
Val Val Lys Glu Lys Phe Glu Glu Val Asp Thr Val Ser Arg Ala Gly			
35	40	45	
Ala Asn His His His His His His Gly His His Gly Gly His Gly Phe			
50	55	60	
Val Val Arg Glu Thr Arg Val Glu Glu Asp Ile Asn Thr Cys Thr Gly			
65	70	75	80
Glu Val His Glu Arg Arg Glu Ser Phe Leu Ala Arg Ala Asn			
85	90		
<210> 9			
<211> 529			
<212> DNA			
<213> Zea mays			
<220>			
<221> CDS			
<222> (53)...(331)			
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agcggcgggg aagaagggt acaagatgaa gacgcacaag gcgtcggcac ca atg gct			58
		Met Ala	

tac tac cag gag gtg gac tac tgc tgc gag gag gtg agg tgc gtg gcc 106  
Tyr Tyr Gln Glu Val Asp Tyr Cys Ser Glu Glu Val Arg Ser Val Ala  
5 10 15

ccg gcc ggc ttc ggc cgc cac ggc ggc ggc gtc cag cag cac gtc gtc 154  
Pro Ala Gly Phe Gly Arg His Gly Gly Gly Val Gln Gln His Val Val  
20 25 30

aag gag aag ttc gag gag gtc gac acg gtc gca cgc gcc ggc gcc aac 202  
Lys Glu Lys Phe Glu Glu Val Asp Thr Val Ala Arg Ala Gly Ala Asn  
35 40 45 50

cac cac cac cac cat ggt cac cac ggc ggc cac ggc ttc gtg gtg cgc 250  
His His His His His Gly His His Gly Gly His Gly Phe Val Val Arg  
55 60 65

gag acc agg gtc gag gag gac atc aac acc tgc acc ggc gag gtc cac 298  
Glu Thr Arg Val Glu Glu Asp Ile Asn Thr Cys Thr Gly Glu Val His  
70 75 80

gag cgc agg gag agc ttc ctc gcc agg gct aac tgagcagccc gggcggccgg 351  
Glu Arg Arg Glu Ser Phe Leu Ala Arg Ala Asn  
85 90

catccacgcc cgcttcgtgcc tgcttgcgtg ccttatgtat gtctgtgatt gtgcagggtc 411  
atcgtacttg gctagcgtac gtgcacgcac tcagctcctg tacgaattac gataataagc 471  
tcgtgacctg aataaaaactt cttcgtaata ctaataccta aaaaaaaaaa aaaaaaaaaa 529

<210> 10  
<211> 93  
<212> PRT  
<213> Zea mays

<400> 10  
Met Ala Tyr Tyr Gln Glu Val Asp Tyr Cys Ser Glu Glu Val Arg Ser  
1 5 10 15  
Val Ala Pro Ala Gly Phe Gly Arg His Gly Gly Gly Val Gln Gln His  
20 25 30  
Val Val Lys Glu Lys Phe Glu Glu Val Asp Thr Val Ala Arg Ala Gly  
35 40 45  
Ala Asn His His His His His Gly His His Gly Gly His Gly Phe Val  
50 55 60  
Val Arg Glu Thr Arg Val Glu Glu Asp Ile Asn Thr Cys Thr Gly Glu  
65 70 75 80  
Val His Glu Arg Arg Glu Ser Phe Leu Ala Arg Ala Asn  
85 90

<210> 11  
<211> 22  
<212> DNA  
<213> Zea mays

<400> 11  
gcaccaatgg cttactacca gg

<210> 12  
 <211> 19  
 <212> DNA  
 <213> Zea mays

<400> 12  
 cgggcggctc agttagccc

19

<210> 13  
 <211> 348  
 <212> DNA  
 <213> Oryza sativa

<220>  
 <221> CDS  
 <222> (52)...(348)

<221> misc\_feature  
 <222> (1)...(348)  
 <223> n = A,T,C or G

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 Met Ala  
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57

cac tac cag gag gtg gac tac tgc tcg gag gag gtg agg tcg gtg acc  
 His Tyr Gln Glu Val Asp Tyr Cys Ser Glu Glu Val Arg Ser Val Thr  
 5 10 15

105

ccc acc ggc ggc ttc ctc ggc cgc ggc ggc gtg cag cag cag cac gtc  
 Pro Thr Gly Gly Phe Leu Gly Arg Gly Gly Val Gln Gln Gln His Val  
 20 25 30

153

gtc aag gag acg ttc cag gag atc gac ang tcc ggc tcc ggc cgg can  
 Val Lys Glu Thr Phe Gln Glu Ile Asp Xaa Ser Gly Ser Gly Arg Xaa  
 35 40 45 50

201

can cac aac cac aac cac ggc aac gac tac ctn atg gtg cgc gag acc  
 Xaa His Asn His Asn His Gly Asn Asp Tyr Xaa Met Val Arg Glu Thr  
 55 60 65

249

aag gtn gag gag gac ttt aac acc tgc acc ggc gag ttt cgc gag cgc  
 Lys Xaa Glu Glu Asp Phe Asn Thr Cys Thr Gly Glu Phe Arg Glu Arg  
 70 75 80

297

aan aag gag ctt tcc tgc tna agt ccg act tna tcg aac ctg ctg tgt  
 Xaa Lys Glu Leu Ser Cys Xaa Ser Pro Thr Xaa Ser Asn Leu Leu Cys  
 85 90 95

345

gta  
 Val

348

<210> 14  
 <211> 99

<212> PRT  
 <213> Oryza sativa

<220>  
 <221> VARIANT  
 <222> (1)...(99)  
 <223> Xaa = Any Amino Acid

<400> 14  
 Met Ala His Tyr Gln Glu Val Asp Tyr Cys Ser Glu Glu Val Arg Ser  
 1 5 10 15  
 Val Thr Pro Thr Gly Gly Phe Leu Gly Arg Gly Gly Val Gln Gln Gln  
 20 25 30  
 His Val Val Lys Glu Thr Phe Gln Glu Ile Asp Xaa Ser Gly Ser Gly  
 35 40 45  
 Arg Xaa Xaa His Asn His Asn His Gly Asn Asp Tyr Xaa Met Val Arg  
 50 55 60  
 Glu Thr Lys Xaa Glu Glu Asp Phe Asn Thr Cys Thr Gly Glu Phe Arg  
 65 70 75 80  
 Glu Arg Xaa Lys Glu Leu Ser Cys Xaa Ser Pro Thr Xaa Ser Asn Leu  
 85 90 95  
 Leu Cys Val

<210> 15  
 <211> 591  
 <212> DNA  
 <213> Oryza sativa

<220>  
 <221> CDS  
 <222> (61)...(333)  
 <221> misc\_feature  
 <222> (1)...(591)  
 <223> n = A,T,C or G

<400> 15  
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 atg gct cac tac cag gag gtg gac tac tgc tcg gag gag gtg agg tcg 108  
 Met Ala His Tyr Gln Glu Val Asp Tyr Cys Ser Glu Glu Val Arg Ser  
 1 5 10 15  
 gtg acc ccc acc ggc ggc ttc ctc ggc cgc ggc ggc gtg cag cag cag 156  
 Val Thr Pro Thr Gly Gly Phe Leu Gly Arg Gly Gly Val Gln Gln Gln  
 20 25 30  
 cac gtc gtc aag gag acg ttc cag gag atc gac agg tcc ggc tcc ggc 204  
 His Val Val Lys Glu Thr Phe Gln Glu Ile Asp Arg Ser Gly Ser Gly  
 35 40 45  
 cgc cac cac cac aac cac aac cac ggc aac gac tac ctg atg gtg cgc 252  
 Arg His His His Asn His Asn His Gly Asn Asp Tyr Leu Met Val Arg  
 50 55 60  
 gag acc aag gtg gag gag gac ttc aac acc tgc acc ggc gag ttc cgc 300  
 Glu Thr Lys Val Glu Glu Asp Phe Asn Thr Cys Thr Gly Glu Phe Arg



65

70

75

80

gag cgc aag cag agc ttc ctg ctc aag tcc gac tgatcgaacc tgctgtgtgt 353  
 Glu Arg Lys Gln Ser Phe Leu Leu Lys Ser Asp

85

90

accggtgtac gtacgtacgt atatgtgtgc ccgtacgtag tcgtggtggt catgtggtgg 413  
 cttagctcta cgtgtatata gtgcgtgcgt gtgtacgtgc gtacacggag cttagctaata 473  
 tagcaccttc ttcctgtgc gattactacg aacggagagg gggggtgtat gaaaaataat 533  
 tcgtgacctg atatataanc tgyctaatac acggtaaaaa aaaaaaaaaa aaagaaaa 591

&lt;210&gt; 16

&lt;211&gt; 91

&lt;212&gt; PRT

&lt;213&gt; Oryza sativa

&lt;400&gt; 16

Met Ala His Tyr Gln Glu Val Asp Tyr Cys Ser Glu Glu Val Arg Ser  
 1 5 10 15  
 Val Thr Pro Thr Gly Gly Phe Leu Gly Arg Gly Gly Val Gln Gln Gln  
 20 25 30  
 His Val Val Lys Glu Thr Phe Gln Glu Ile Asp Arg Ser Gly Ser Gly  
 35 40 45  
 Arg His His His Asn His Asn His Gly Asn Asp Tyr Leu Met Val Arg  
 50 55 60  
 Glu Thr Lys Val Glu Glu Asp Phe Asn Thr Cys Thr Gly Glu Phe Arg  
 65 70 75 80  
 Glu Arg Lys Gln Ser Phe Leu Leu Lys Ser Asp  
 85 90

&lt;210&gt; 17

&lt;211&gt; 524

&lt;212&gt; DNA

&lt;213&gt; Triticum aestivum

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (57)...(338)

&lt;221&gt; misc\_feature

&lt;222&gt; (1)...(524)

&lt;223&gt; n = A,T,C or G

&lt;400&gt; 17

caagcacttc gacgtcgac gggcgctgca cacagacaca ccaagcgctcg gcacca atg 59  
 Met  
 1

gct tac tac cag gag gtg gac tac tgc tcg gag gag gtg agg tcg gtg 107  
 Ala Tyr Tyr Gln Glu Val Asp Tyr Cys Ser Glu Glu Val Arg Ser Val  
 5 10 15

gcc ccg gcc ggc ttc ggc cgc cac gga ggc ggc gtc cag cag cac gtc 155  
 Ala Pro Ala Gly Phe Gly Arg His Gly Gly Gly Val Gln Gln His Val  
 20 25 30

gtc aag gag aag ttc gag gag gtc gac acg gtc tca cgc gcc ggc gcc 203

Val Lys Glu Lys Phe Glu Glu Val Asp Thr Val Ser Arg Ala Gly Ala  
 35 40 45

aac cac cac cac cac cat ggt cac cac ggc ggc cac ggc ttc gtg 251  
 Asn His His His His His His Gly His His Gly Gly His Gly Phe Val  
 50 55 60 65

gtg cgc gag acc agg gtc gag gag gac atc aac acc tgc acc ggc gag 299  
 Val Arg Glu Thr Arg Val Glu Glu Asp Ile Asn Thr Cys Thr Gly Glu  
 70 75 80

gtc cac gag cgc agg gag agc ttc ctc gcc agg gct aac tgagccgccc 348  
 Val His Glu Arg Arg Glu Ser Phe Leu Ala Arg Ala Asn  
 85 90

ggcgcccgcc atccacgccc gttcgtgcct gcctgcgtgc cytatstatg tctgtggttg 408  
 actggttgtg caaggtcacc ntacttggct atcgtagts mascactcrs tctgtmcaa 468  
 ttacacaata rctcctgacc tgaataaaac tctcstatac taaaaaaaaa araaaa 524

<210> 18  
 <211> 94  
 <212> PRT  
 <213> Triticum aestivum

<400> 18  
 Met Ala Tyr Tyr Gln Glu Val Asp Tyr Cys Ser Glu Glu Val Arg Ser  
 1 5 10 15  
 Val Ala Pro Ala Gly Phe Gly Arg His Gly Gly Gly Val Gln Gln His  
 20 25 30  
 Val Val Lys Glu Lys Phe Glu Glu Val Asp Thr Val Ser Arg Ala Gly  
 35 40 45  
 Ala Asn His His His His His Gly His His Gly Gly His Gly Phe  
 50 55 60  
 Val Val Arg Glu Thr Arg Val Glu Glu Asp Ile Asn Thr Cys Thr Gly  
 65 70 75 80  
 Glu Val His Glu Arg Arg Glu Ser Phe Leu Ala Arg Ala Asn  
 85 90

<210> 19  
 <211> 584  
 <212> DNA  
 <213> Triticum aestivum

<220>  
 <221> CDS  
 <222> (46)...(321)

<221> misc\_feature  
 <222> (1)...(584)  
 <223> n = A,T,C or G

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 Met Ala His Phe  
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cag gag gtg gac tac tgc tcg gag gag gtg agg gcg gtg ggc tac ccg 105

Gln Glu Val Asp Tyr Cys Ser Glu Glu Val Arg Ala Val Gly Tyr Pro  
5 10 15 20

gcc cgc cgc ggc tgc ggc ggc gtg cag gag cac atc gtc aag gag acg 153  
Ala Arg Arg Gly Cys Gly Gly Val Gln Glu His Ile Val Lys Glu Thr  
25 30 35

ttc gtg cag gag ttc gac acc gcc ggc cgc cgc cay ggt cac cac ggt 201  
Phe Val Gln Glu Phe Asp Thr Ala Gly Arg Arg Xaa Gly His His Gly  
40 45 50

cac cac ggc cgy ggc tcy ggt cac ttc gag gtg cgc gag agc aag cts 249  
His His Gly Xaa Gly Xaa Gly His Phe Glu Val Arg Glu Ser Lys Xaa  
55 60 65

gar gag gac atc aac acc cgc acc ggs gag ttc cac gaa cgc aag gga 297  
Xaa Glu Asp Ile Asn Thr Arg Thr Xaa Glu Phe His Glu Arg Lys Gly  
70 75 80

aay ttc tcs tcc aag gcc gat gac trasytwaac ayttmcggac acactacatg 351  
Xaa Phe Xaa Ser Lys Ala Asp Asp  
85 90

tgtgtawatt mygsattcaa mattatatgt atgtkktkatg ttkcccamat ccywtacctt 411  
tgcaagctkc ctttyttggcg gsaacaaccc yatygtgcsc csttcaacct taataancct 471  
ancntgaaca gataaactnc tgatagtnnt aaaaaaagg ggcgtacca atcgctatat 531  
ggtcttttagc cctncggcgt cgttnccactc tncgtgaaan ctggtacact tan 584

<210> 20  
<211> 92  
<212> PRT  
<213> Triticum aestivum

<400> 20  
Met Ala His Phe Gln Glu Val Asp Tyr Cys Ser Glu Glu Val Arg Ala  
1 5 10 15  
Val Gly Tyr Pro Ala Arg Arg Gly Cys Gly Gly Val Gln Glu His Ile  
20 25 30  
Val Lys Glu Thr Phe Val Gln Glu Phe Asp Thr Ala Gly Arg Arg His  
35 40 45  
Gly His His Gly His His Gly Arg Gly Ser Gly His Phe Glu Val Arg  
50 55 60  
Glu Ser Arg Leu Glu Glu Asp Ile Asn Thr Arg Thr Gly Glu Phe His  
65 70 75 80  
Glu Arg Lys Glu Asn Phe Val Val Arg Ala Asp Asp  
85 90

<210> 21  
<211> 436  
<212> DNA  
<213> Triticum aestivum

<220>  
<221> CDS  
<222> (54)...(326)

<400> 21

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Met  
1

gcg cac ttc cag gag gtg gac tac tgc tcg gag gag gtg agg gcg gtg 104  
Ala His Phe Gln Glu Val Asp Tyr Cys Ser Glu Glu Val Arg Ala Val  
5 10 15

ggc aac ccg gcc cgc cgc ggc ggc ggc gtg cag gag cac atc gtc aag 152  
Gly Asn Pro Ala Arg Arg Gly Gly Gly Val Gln Glu His Ile Val Lys  
20 25 30

gag acg ttc gtg cag gag ttc gac acc tcc ggc cgc cgc cac ggt cac 200  
Glu Thr Phe Val Gln Glu Phe Asp Thr Ser Gly Arg Arg His Gly His  
35 40 45

cac ggt cac cac ggc cgc ggc tct ggt cac ttc gag gtg cgc gag agc 248  
His Gly His His Gly Arg Gly Ser Gly His Phe Glu Val Arg Glu Ser  
50 55 60 65

agg ctc gag gag gac ttc aac acc cgc acc ggg gag ttc cac gag cgc 296  
Arg Leu Glu Glu Asp Phe Asn Thr Arg Thr Gly Glu Phe His Glu Arg  
70 75 80

aag gag aac ttc gtc gtc agg gcc gat gac tgagcttaca cgtaacggag 346  
Lys Glu Asn Phe Val Val Arg Ala Asp Asp  
85 90

cacactacga tgtgtgtata tgtatgcatg tcagcagtat atgtatgtgt gatgttgccg 406  
acagtcgtat agcgtatgca ggcgtgcgtg 436

<210> 22

<211> 91

<212> PRT

<213> Triticum aestivum

<400> 22

Met Ala His Phe Gln Glu Val Asp Tyr Cys Ser Glu Glu Val Arg Ala  
1 5 10 15  
Val Gly Asn Pro Ala Arg Arg Gly Gly Gly Val Gln Glu His Ile Val  
20 25 30  
Lys Glu Thr Phe Val Gln Glu Phe Asp Thr Ser Gly Arg Arg His Gly  
35 40 45  
His His Gly His His Gly Arg Gly Ser Gly His Phe Glu Val Arg Glu  
50 55 60  
Ser Arg Leu Glu Glu Asp Phe Asn Thr Arg Thr Gly Glu Phe His Glu  
65 70 75 80  
Arg Lys Glu Asn Phe Val Val Arg Ala Asp Asp  
85 90

<210> 23

<211> 584

<212> DNA

<213> Triticum aestivum

<220>

<221> CDS

<222> (46)...(321)

<221> misc\_feature

<222> (1)...(584)

<223> n = A,T,C or G

<400> 23

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Met Ala His Phe  
1

cag gag gtg gac tac tgc tcg gag gag gtg agg gcg gtg ggc tac ccg 105  
Gln Glu Val Asp Tyr Cys Ser Glu Glu Val Arg Ala Val Gly Tyr Pro  
5 10 15 20

gcc cgc cgc ggc tgc ggc ggc gtg cag gag cac atc gtc aag gag acg 153  
Ala Arg Arg Gly Cys Gly Gly Val Gln Glu His Ile Val Lys Glu Thr  
25 30 35

ttc gtg cag gag ttc gac acc gcc ggc cgc cgc cay ggt cac cac ggt 201  
Phe Val Gln Glu Phe Asp Thr Ala Gly Arg Arg Xaa Gly His His Gly  
40 45 50

cac cac ggc cgy ggc tcy ggt cac ttc gag gtg cgc gag agc aag cts 249  
His His Gly Xaa Gly Xaa Gly His Phe Glu Val Arg Glu Ser Lys Xaa  
55 60 65

gar gag gac atc aac acc cgc acc ggs gag ttc cac gaa cgc aag gga 297  
Xaa Glu Asp Ile Asn Thr Arg Thr Xaa Glu Phe His Glu Arg Lys Gly  
70 75 80

aay ttc tcs tcc aag gcc gat gac trasytwaac ayttmcggac acactacatg 351  
Xaa Phe Xaa Ser Lys Ala Asp Asp  
85 90

tgtgtawatt mygsattcaa mattatatgt atgtktkatg ttkccamat ccywtacctt 411  
tgcaagctkc cttyttggcg gsaacaaccc yatyggtgcsc csttcaacct taataancct 471  
ancntgaaca gataaactnc tgatagtntt aaaaaaaggg ggccgtacca atcgctatat 531  
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<210> 24

<211> 92

<212> PRT

<213> Triticum aestivum

<400> 24

Met Ala His Phe Gln Glu Val Asp Tyr Cys Ser Glu Glu Val Arg Ala  
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Val Gly Tyr Pro Ala Arg Arg Gly Cys Gly Gly Val Gln Glu His Ile  
20 25 30  
Val Lys Glu Thr Phe Val Gln Glu Phe Asp Thr Ala Gly Arg Arg His  
35 40 45  
Gly His His Gly His His Gly Arg Gly Ser Gly His Phe Glu Val Arg  
50 55 60  
Glu Ser Lys Leu Glu Glu Asp Ile Asn Thr Arg Thr Gly Glu Phe His  
65 70 75 80  
Glu Arg Lys Gly Asn Phe Ser Ser Lys Ala Asp Asp

<210> 25  
<211> 36  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Designed oligonucleotide based upon an adaptor  
used for cDNA library construction and poly(dT) to  
remove clones which have a poly(A) tail but no  
cDNA insert.

<400> 25  
tcgaccacg cgtccgaaaa aaaaaaaaaa aaaaaa

36

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